

CURRICULUM VITAE OF SURESH KUMAR TIKOO

EXPERIENCE

Professional

- 2001-present **Research Scientist IV (Professor)** in Vaccine & Infectious Disease Organization (VIDO), University of Saskatchewan, Saskatoon, Canada
- 1999-present **Adjunct Professor**, Department of Veterinary Microbiology, Western College of Veterinary Medicine, University of Saskatchewan, Saskatoon, Canada
- 1998-2001 **Research Scientist III (Associate Professor)** in Veterinary Infectious Disease Organization (VIDO), University of Saskatchewan, Saskatoon, Canada
- 1993 -1997 **Research Scientist II (Assistant Professor)** in Veterinary Infectious Disease Organization (VIDO), University of Saskatchewan, Saskatoon, Canada.
- 1992-1993 **Post Doctoral Fellow** in the department of Veterinary Microbiology, University of Saskatchewan, Saskatoon, Canada.
- 1987-1991 **Canadian Commonwealth Fellowship Holder**, registered for PhD.
- 1981-1986 **Assistant Professor**, Department of Veterinary Public Health & Epidemiology, Haryana Agriculture University, Hisar, Haryana, India.

Administrative

- 2003-present **Head, Vectored Vaccines Program**, Vaccine & Infectious Disease Organization (VIDO), University Of Saskatchewan, Saskatoon, Canada. (*Overall responsibility of Vectored Vaccine program funding, planning, management and budgeting*)
- 1998- 2002 **Head, Virology Program**, Veterinary Infectious Disease Organization (VIDO), University Of Saskatchewan, Saskatoon, Canada. (*Overall responsibility of Virology program planning, management and budgeting*)

1996-1997

Co-ordinator Virology Program, VIDO, University of Saskatchewan, Saskatoon, Saskatchewan, Canada. (*co-ordinating budgeting process, performance planning and appraisal of research staff of Virology group*)

Teaching

- VTMC-833. (Advanced Virology). Taught Graduate level course. (Veterinary Microbiology, WCVU University of Saskatchewan, Saskatoon)
- VPE-306. (Veterinary Public Health & Epidemiology). Taught undergraduate students of 3rd year DVM class (Veterinary College, HAU Hissar)
- VPE-102. (Introductory Hygiene). Taught undergraduate students of 2nd year class of home Science (Home Science College, HAU Hissar)

Supervision

Scientist II

1. A.N. Zakhartchouk (2003-present)
2. Yan Zhou (2003-present)

Scientist 1

1. M. K. Baxi (2000-2001)
2. A. N. Zakhartchouk (2001- 2002)

Post-doctoral Fellow(s):

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|----------------|----------------|-----------------------|----------------|
| 1. P. S. Reddy | (1995-1998) | 2. A. N. Zhakartchouk | (1996- 1999) |
| 3. M. K. Baxi | (1996-1999) | 4. Q. Wu | (1998-2001) |
| 5. Y. Zhou | (1998-2000) | 6. L. Zang | (1998-2000) |
| 7. L. Xing | (2001-present) | 8. M. Singh | (2001-present) |
| 9. Amy Yang | (2002-present) | 10. Andrew Ficzyycz | (2003-present) |

Graduate students

- | | |
|-----------------------|--------------------|
| 1. Sunil Khattar | PhD (1993-1997) |
| 2. N. Idamakanti | MSc (1996-1998) |
| 3. Vikas Kulshreshtha | MSc (1999-2003) |
| 4. Xiaoxin Li | PhD (1998-2003) |
| 5. J. Robertson | MSc(2001-present) |
| 6. Vikas Kulshreshtha | PhD (2003-present) |

Technicians

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|------------------|----------------|
| 1. Caron Pyne | (1993-present) |
| 2. Yan Chen | (1997-2000) |
| 3. Jill Schluff | (1998-present) |
| 4. Wayne Connors | (2000-2002) |
| 5. S. Hansranee | (2002-present) |
| 6. Drew Findlay | (2002-present) |
| 7. Betty Chow | (2001-present) |

Summer Students

- | | | | | | |
|-----------------|---------|-----------------|---------|----------------|--------|
| 1. Rama Panford | (1998). | 2. Stu Skinner | (1999). | 3. Pawan Kumar | (2000) |
| 4. Tyler Whale | (2001). | 5. A. Goldfinch | (2002). | 6. Aisha Dar | (2003) |

Co-supervisor

1. Ildiko Badea PhD (2001-present)

Member graduate advisory committee

1. Tyler Whale PhD (1999-present)

ADHOC REVIEWER

Grants

1. Natural Science and Engineering Research Council of Canada
2. Maryland Agriculture Experiment Station, University of Maryland, USA
3. Atlantic Canada Opportunities fund grant

Journals

1. Journal of American Veterinary Medical Association
2. Journal of Virology
3. Cellular and Molecular Life Sciences

PRIZES AND AWARDS

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|-----------|---|
| 1987-1991 | Prestigious Canadian Commonwealth Scholarship and Fellowship Award for PhD studies in Canada. |
| 1989-1990 | MSD/AGVET Award for outstanding achievement in Research. |
| 1986-1989 | Awarded ICAR Senior Research Fellowship |
| 1977-1980 | University Graduate Study Award for MVSc. |
| 1973-1975 | University Merit Scholarship BVSc&AH .(DVM) |

INVITED LECTURES / SEMINARS

- 1) Altering tropism of bovine adenovirus-3. (2003). Veterinary Microbiology, Western college of veterinary Medicine, University of Saskatchewan, Saskatoon, SK. Canada
- 2) Mutational Analysis of bovine adenovirus-3 and development as vaccine vector.(2002). Veterinary Microbiology, Western College of Veterinary Medicine, University of Saskatchewan, Saskatoon, SK. Canada
- 3) Animal adenoviruses as vectors for human gene therapy.(2000). Transgene, Strausbourg, France

- 4) Animal Adenovirus as an expression vector. (2000). Neuropsychiatric Research Unit, Department of Psychiatry, University of Saskatchewan, Saskatoon, SK. Canada
- 5) Recent advances in the development of animal adenoviruses. (1999). Transgene, Strausbourg, France.
- 6) Animal adenovirus as a vector for human vaccination. (1999). Merck Research Laboratories, West Point, Philadelphia, USA.
- 7) Development of bovine adenovirus-3 as a live viral vector. (1997). Transgene Strausbourg, France.
- 8) Structure, function and construction of a cell line expressing BHV-1 glycoprotein gH. (1997). Pfizer Animal Health, Groton, CT. USA

LEARNED SOCIETIES

1999-present	Member American Society of Gene Therapy
1996-present	Full member of the American Society for Virology.
1996-present	Member American Association for Advancement of Science.
1994-present	Member American Society of Microbiology.

RESEARCH GRANT

Current

2003-2006	<u>Principal investigator</u> : Awarded a Collaborative Research Development Grant from Natural Science and Engineering Research Council of Canada and Animal Health Industry entitled, " <i>Bovine adenovirus-3 based vaccines</i> " (\$1880,500 /3 year).
2002-2006	<u>Principal Investigator</u> : Awarded a Discovery grant from Natural Science and Engineering Research Council of Canada entitled, " <i>Characterization of non structural proteins of bovine adenovirus-3</i> ". (\$112,000 / 4 year).
2002-2007	<u>Co-Investigator</u> (one of eleven): Awarded a group grant from CIHR Health research program of excellence on a project entitled, " <i>Innovative vaccine development and delivery to induce mucosal immunity</i> ". (\$1836,000 / 5 years).
2002-2005	<u>Investigator</u> (one of twelve). Awarded a group grant from Genome Canada on a project entitled, "Functional pathogenomics of mucosal immunity". (\$26 million / 3 years)

- 2002-2005 **Principal Investigator:** Awarded a grant from Saskatchewan Agriculture Development Fund on a project entitled, "*Needle free Vaccine delivery system for cattle*". (\$117,500 / 3 years).
- 2000-2004 **Principal Investigator:** Awarded a Strategic projects Discovery grant from Natural Science and Engineering Research Council of Canada (NSERC) entitled, "*Development of porcine adenovirus-3 as a vaccine vector*" (\$560,000 / 4 years).
- 2001-2003 **Principal Investigator:** Awarded a grant from Ontario Cattlemen Association, Canada on a project entitled, "*Development of needle free vaccine delivery system for cattle*" (\$43,000 / 2 years)

Past

- 2000-2003 **Principal Investigator:** Awarded a grant from Alberta Agriculture Research Institute on a project entitled, "*Porcine adenovirus-3 based live vectored vaccines*". (\$120,000 / 3 years).
- 2000-2003 **Principal Investigator:** Awarded a grant from Saskatchewan Agriculture Development Fund on a project entitled, "*Development of Porcine Adenovirus-3 based Vaccine vector*". (\$118,000 / 3 years).
- 1999-2002 **Principal Investigator:** Awarded a grant from Medical Research Council of Canada on a research project entitled, "*Animal Adenovirus as Vector for Gene Therapy*". (\$140,500 / 2 1/2 years)
- 1999-2002 **Principal Investigator:** Awarded a grant from Alberta Agriculture Research Institute on a research project entitled, "*Bovine Adenovirus-3 expressing multiple antigens*" (\$240,000 / 3 year).
- 1999-2000 **Principal investigator:** Awarded as a research fellowship (for a Post Doctoral Fellow) from HSURC Saskatchewan on a research project entitled, "*Characterization of E4 region of Bovine Adenovirus-3.*" (\$ 32000 / 1 year).
- 1996-1999 **Principal Investigator:** Awarded an individual grant from Alberta Agriculture Research Institute on a research project entitled "*Developing Bovine Adenovirus as a Live Vector*" (\$270,000 / 3 years).
- 1997-1999 **Principal investigator:** Two research fellowships (for Post Doctoral Fellows) from HSURC Saskatchewan on a research project entitled, "*Development of E3 and E4 deleted bovine adenovirus as a live virus vector*" (\$120,000 / 2 years).
- 1997-1998 **Co-Principal Investigator:** a grant from AARI on a project entitled, "*Development of a disabled infectious single cycle (DISC) BHV-1 vaccine*" (\$75,000 / 1 year).

1997-2000	<u>Co-Principal Investigator:</u> a grant from NSERC on a project entitled, " <i>Development of BAV-3 based bovine vaccines</i> " (\$354,000 / 3 years).
1996-1999	<u>Co-Investigator:</u> A grant from Beef Industry Development Fund on a research project entitled " <i>Vaccination alternatives to eliminate injection site blemishes in beef</i> " (\$120000 / 3 years).
1994-1997	<u>Co-Investigator:</u> A grant from Natural Sciences and Engineering Research Council of Canada and Agriculture Canada on a research project entitled " <i>Vaccines for bovine respiratory disease</i> " (\$180,000 / 3 years).

PAPERS AND PUBLICATION RECORD

a) Papers in refereed journals:

1. Xing L., and **S. K. Tikoo***, 2003. Characterization of cis- acting sequences for PAV-3 DNA encapsidation. Virology (Accepted)
2. Zakhartchouk, A. N., Y. Zhou, and **S. K. Tikoo*** 2003. A recombinant E1 deleted porcine adenovirus-3 as an expression vector. Virology (In press)
3. Li, X. and **S. K. Tikoo***, 2002. Genetic organization and sequence analysis of pVIII, fiber and E4 region of bovine adenovirus type 7. Virus Genes 25:59-65.
4. van Olphen, A. L., **S. K. Tikoo** and S. K. Mittal. 2002. Characterization of bovine adenovirus type 3 E1 proteins and isolation of E1-expressing cell lines. Virology 295:108-118.
5. Zhou, Y, and **S. K. Tikoo***. 2001. Analysis of E1 region of porcine adenovirus-3. Virology. 291: 68-76.
6. Zhou, Y., C. Pyne, and **S. K. Tikoo***. 2001. Characterization of DNA binding protein of porcine adenovirus-3. Intervirology. 44:350-354.
7. Zhou, Y., C. Pyne, and **S. K. Tikoo***. 2001. Determination of bovine adenovirus-3 titer based on immunohistochemical detection of DNA binding protein in infected cells. J. Virological Methods 94:147-153.
8. Baxi, M. K., J. Robertson, L. A. Babiuk, and **S. K. Tikoo*** 2001. Mutational analysis of early region 4 of bovine adenovirus type 3. Virology 290:153-163.
9. Zhou, Y, P. S. Reddy, L. A. Babiuk and **S. K. Tikoo***. 2001 BAV-3 E1B^{small} protein is essential for growth of BAV-3 in bovine fibroblast cells . Virology 288:264-274.
10. Liu, Q, **S. K. Tikoo** and L. A. Babiuk 2001. Nuclear localization of ORF2 protein encoded by porcine circovirus type 2. Virology 285:91-99.
11. Hammond, J. M., E. S. Jansen, C. J. Morrissy, B. van der Heide, W. V. Goff, M. M. Williamson, P. Hoover, L. A. Babiuk, **S. K. Tikoo** and M. A. Johnson 2001. Vaccination of pigs with a recombinant porcine adenovirus expressing the gD gene of pseudorabies virus. Vaccine 19:3752-3758.

12. Zakhartchouk, A. N., D. L. Godson, L. A. Babiuk and S. K. Tikoo*. 2001. 121R protein of BAV-3 protects mouse cells from TNF lysis. Intervirology 44:29-35.
13. Baxi, M. K., D. Dereget, J. Robertson, L. A. Babiuk, T. Schlapp and S. K. Tikoo*. 2000. Recombinant bovine adenovirus type 3 expressing bovine viral diarrhea virus glycoprotein E2 induces an immune response in cotton rats. Virology 278:234-243.
14. Reddy, P. S., N. Idamakanti, C. Pyne, A. N. Zakhartchouk, D. L. Godson, Z. Papp, M. E. Baca-Estrada, L. A. Babiuk, G. K. Mutwiri, and S. K. Tikoo*. 2000. The immunogenicity and efficacy of replication-defective and replication-competent bovine adenovirus-3 expressing bovine herpesvirus-1 glycoprotein gD in cattle. Veterinary Immunology and Immunopathology. 76:257-268.
15. Reddy, P. S., N. Idamakanti, A. N. Zakhartchouk, L. A. Babiuk, M. Mehtali and S. K. Tikoo*. 2000. Optimization of bovine coronavirus hemagglutinin-estrase glycoprotein expression in E3 deleted bovine adenovirus-3. Virus Research 70:65-73.
16. Baxi, M. K., L. A. Babiuk, M. Mehtali and S. K. Tikoo*. 1999. Transcription map and expression of bovine herpesvirus-1 glycoprotein D in early region 4 of bovine adenovirus type 3. Virology 261:143-152.
17. Reddy, P. S., N. Idamakanti, L. A. Babiuk, M. Mehtali, and S. K. Tikoo*. 1999. Porcine adenovirus type 3 as a helper-dependent expression vector. J. Gen. Virol. 80:2909-2916.
18. Reddy, P. S., N. Idamakanti, Y. Chen, T. Whale, L. A. Babiuk, M. Mehtali, and S. K. Tikoo*. 1999. Replication- defective bovine adenovirus-3 as an expression vector. J. Virol. 73:9137-9144.
19. Zakhartchouk, A. N., C. Pyne, G. Mutwiri, Z. Papp, M. E. Baca-Estrada, P. Griebel, L. A. Babiuk, and S. K. Tikoo* 1999. Mucosal immunization of calves with recombinant bovine adenovirus-3: Induction of protective immunity to bovine herpesvirus-1. J. Gen. Virol. 80: 1263-1269.
20. Reddy, P. S., Y. Chen, N. Idamakanti, C. Pyne, L. A. Babiuk, and S. K. Tikoo * 1999. Characterization of early region 1 and pIX of bovine adenovirus-3. Virology 253:299-308.
21. Idamakanti, N., P. S. Reddy, L. A. Babiuk, and S. K. Tikoo*. 1999. Transcriptional mapping and characterization of 284R and 121R proteins produced from early region 3 of bovine adenovirus type 3. Virology 256: 351-359.
22. Reddy, P. S., H. Hyun, N. Idamakanti, S. K. Tikoo and L. A. Babiuk 1999. Development of porcine adenovirus 3 as a vector . J. Gen Virol. 80:563-570.
23. Reddy, P. S., N. Idamakanti, J.Y. Song, J. B. Lee, B. H. Hyun, J. H. Park, S. H. Cha, S. K. Tikoo and L. A. Babiuk 1999. Sequence and transcription map analysis of early region-1 of porcine adenovirus type-3. Virus Research 58:97-106.
24. Mittal, S. K., S. K. Tikoo, J. Van Donkersgoed, T. Beskorwayne, D. L. Godson and L. A. Babiuk. 1999. Experimental inoculation of heifers with bovine adenovirus-3. Can. J. Vet. Res. 63:153-156.
25. Reddy, P. S., N. Idamakanti, A. N., Zakhartchouk, M. K. Baxi, J. B. Lee, C. Pyne, L. A. Babiuk, and S. K. Tikoo*. 1998. Nucleotide sequence, genomic organization and transcriptional map of bovine adenovirus-3. J. Virol. 72:1394-1402.

26. Baxi, M. K., P. S. Reddy, A. N. Zakhartchouk, N. Idamakanti, C. Pyne, L. A. Babiuk, and S. K. Tikoo*. 1998. Characterization of bovine adenovirus-3 early region 2B. Virus Genes 16:313-316.
27. Lee, J. B., M. K. Baxi, N. Idamakanti, P. S. Reddy, A. N. Zakharchouk, C. Pyne, L. A. Babiuk and S. K. Tikoo*. 1998. Genetic organization and DNA sequence of early region 4 of bovine adenovirus 3. Virus Genes 17: 99-100.
28. Zakhartchouk, A. N., P. S. Reddy, M. K. Baxi, M. E. Baca-Estrada, M. Mehtali, L. A. Babiuk and S. K. Tikoo*. 1998. Construction and characterization of E3 deleted bovine adenovirus-3 expressing full length and truncated forms of bovine herpesvirus type 1 glycoprotein gD. Virology 250:220-229.
29. Reddy, P. S., N. Idamakanti, J. Y. Song, J. B. Lee, B. H. Hyun, J. H. Park, S. H. Cha, Y. T. Bae, S. K. Tikoo and L. A. Babiuk. 1998. Nucleotide sequence and transcriptional map of porcine adenovirus-3. Virology 251:414-426.
30. Mittal, S. K., S. K. Tikoo, J. V. van den Hurk, M. K. Breker-Klassen, D. Yoo, and L. A. Babiuk(1998). Functional characterization of bovine parainfluenza virus type 3 hemagglutinin-Neuraminidase and fusion protein expression by adenovirus recombinants. Intervirology 41:253-260.
31. van Drunen Littel-van den hurk, S., S. K. Tikoo, J. V. van den Hurk, L. A. Babiuk and J. Van Donkersgoed. 1997. Efficacy of two conventional whole virus and two experimental subunit gD vaccines in beef calves following bovine herpesvirus-1 (BHV-1) challenge. Vaccine 15:36-44.
32. Mittal, S. K., Z. Papp., S. K. Tikoo, M. Baca-Estrada, D. Yoo., M. Benko, and L. A. Babiuk. 1996. Induction of systemic and mucosal immune responses in cotton rats immunized with human adenovirus type 5 recombinants expressing the full length and secretory forms of bovine herpes virus type 1 glycoprotein gD. Virology 222:299- 309.
33. Khattar, S. K., S. van Drunen Littel-van den Hurk, Sam K. Attah Poku, L. A. Babiuk, and S. K. Tikoo*. 1996. Identification of a bovine herpesvirus-1 glycoprotein gL which is required for the antigenicity, processing and transport of bovine herpesvirus glycoprotein gH. Virology 219:66-76.
34. van Drunen Littel-van den Hurk, S., S. K. Khattar, S. K. Tikoo, L. A. Babiuk, E. Branowski, D. Plainchamp, and E. Thiry. 1996. Bovine herpesvirus-1 gH(gII_{gp}108) and gL form a functional complex, which plays a role in penetration, but not in attachment of BHV-1. J. Gen. Virol. 77:1515-1520.
35. Mittal, S. K., D. Middleton, S. K. Tikoo, L. Prevec., F. L. Graham, and L. A. Babiuk. 1996. Pathology and immunogenicity in cotton rats (*Sigmodon Hispidus*) model following infection with a bovine adenovirus type 3 recombinant virus expressing the firefly luciferase gene. J. Gen. Virol. 77:1-9.
36. Khadr, A., S. K. Tikoo, L. A. Babiuk, and S. van Drunen Littel-van den hurk. 1996. Sequence and expression of a bovine herpesvirus-1 (BHV-1) gene homologous to the glycoprotein K gene of herpes simplex virus-1 (HSV-1). Gene 168:189-193.
37. Baca-Estrada, M. Snider, S. K. Tikoo, R. Harland, L. A. Babiuk, and S. van Drunen Littel-van den Hurk. 1996. Immunogenicity of bovine herpesvirus 1 glycoprotein gD in mice. Effect of antigen form on the induction of cellular and humoral immune responses. Viral Immunology 9:11-22.

38. ***Tikoo, S. K.**, M. Campos, Y. I. Popowych, S. van Drunen Littel-van den Hurk, and L.A. Babiuk. 1995. Lymphocyte proliferative responses to recombinant bovine herpesvirus type 1 (BHV-1) glycoprotein gD (gIV) in immune cattle: Identification of a T cell epitope. *Viral Immunology* 8:19-25.
39. Khattar, S. K., S. van Drunen Littel-van den Hurk, L. A. Babiuk and **S. K. Tikoo***. 1995. Identification and transcriptional analysis of a 3' co-terminal gene cluster containing UL1, UL2, UL3 and UL3.5 open reading frames of bovine herpesvirus-1 (BHV-1). *Virology* 213: 28-37.
40. Mittal, S. K., D. M. Middleton, **S. K. Tikoo**, and L. A. Babiuk. 1995. Pathogenesis and immunogenicity of bovine adenovirus type -3 in cotton rats (*Sigmodon hispidus*). *Virology* 213: 131-139.
41. ***Tikoo, S. K.**, T. J. Zamb, and L. A. Babiuk. 1993. Analysis of bovine herpesvirus 1 glycoprotein gIV truncations and deletions expressed by recombinant vaccinia viruses. *J. Virol.* 67:2103-2109.
42. ***Tikoo, S. K.**, M. D. Parker, J. V. van den Hurk, J. Kowalski, T. J. Zamb, and L. A. Babiuk. 1993. Role of N-linked glycans in antigenicity, processing, and cell surface expression of bovine herpesvirus 1 glycoprotein gIV. *J. Virol.* 67:726-733.
43. ***Tikoo, S. K.**, D. R. Fitzpatrick, L. A. Babiuk, and T. J. Zamb. 1990. Molecular cloning, sequencing and expression of functional bovine herpesvirus 1 glycoprotein gIV in transfected bovine cells. *J. Virol.* 64:5132-5142.
44. Kaushik, R. K., Jagjit Singh, **S. K. Tikoo**, and R. C. Kulshreshtha. 1986. Fowl typhoid in a few poultry farms of Haryana state. *Indian J. Anim. Sci.* 56:511-514.
45. ***Tikoo, S. K.**, R. C. Kulshreshtha, and R. K. Kaushik. 1984. Prevalence of some of viral diseases in poultry in Haryana and adjoining states. *Haryana Vet.* 23:118-120.
46. ***Tikoo, S. K.**, S. K. Misra, R. C. Kulshreshtha and R. K. Kaushik. 1984. An outbreak of infectious bursal disease in 25-26 week old layers: a short note. *Indian J. Comp. Microbiol. Immunol. Infect. Dis.* 5:123-124.
47. ***Tikoo, S. K.**, R. C. Kulshreshtha, K. C. Bhatia, and R. K. Kaushik. 1984. Brucellosis in poultry: an experimental study. *Int. J. Zoo.* 11:133-138.
48. ***Tikoo, S. K.**, M. P. Yadav, V. B. Singh and V. S. Padbidri. 1982. Rickettsioses surveillance in animals and man in Uttar Pradesh. *Indian J. Med. Res.* 76:179-184.
49. ***Tikoo, S. K.**, and M. P. Yadav. 1981. Note on coxiellosis (*Coxiella burnetii*) infection in amphibians. *Indian J. Anim. Sci.* 51:390-391.

* Indicates corresponding Author

b) Book chapter(s)

1. **Tikoo, S. K.** 2001. Animal adenovirus as a live vaccine vector. In, " Recent research developments in Virology". Vol 3 (II). Pp 495-503.

2. Babiuk, L. A., S. van Drunen Little-van den Hurk, and S. K. Tikoo. 2003. Infectious bovine rhinotracheitis/Infectious pustular vulvovaginitis. In, "Infectious diseases of Livestock with special reference to South Africa". (In press).

c) *Invited Reviews*

1. Babiuk, L. A., and S. K. Tikoo. 2000. Adenoviruses as vectors for delivering vaccines to mucosal surfaces. J. Biotechnology. 83:105-113.
2. Babiuk, L. A., P. J. Lewis, S. van Drunen Little-van den Hurk, S. K. Tikoo, and X. Liang. 1998. Nucleic acid vaccines: Veterinary applications. Current Topics in Microbiology and Immunology 226:96-107.
3. Tikoo, S. K., M. Campos, and L. A. Babiuk. 1995. Bovine herpesvirus-1 (BHV-1): Biology, pathogenesis and control. In: Advances in Virus Research 45:191-223. Ed. Maromorsch, K., Shatkin, A., and Murphy, F., Academic Press. New York, USA.
4. Babiuk, L. A., S. van Drunen Little-van den Hurk, S. K. Tikoo, P. J. Lewis and X. Liang. 1996. Novel viral vaccines for livestock. Vet. Immunol. Immunopathol. 54:355-363.
5. Babiuk, L. A., S. van Drunen Little-van den Hurk, and S. K. Tikoo. 1996. Immunology of bovine herpesvirus-1 (BHV-1). Vet. Microbiology 53:31-426.
6. Babiuk, L. A., P. J. Lewis, G. Cox. S. van Drunen Little-van den Hurk, M. Baca Estrada and S. K. Tikoo. 1995. DNA immunization with bovine herpesvirus-1 genes. Annals New York Academy of Sciences. pp 50-66.
7. van Drunen Little-van den Hurk, S., S. K. Tikoo, X. Liang, and L. A. Babiuk. 1993. Bovine herpesvirus 1 vaccines. Immunol. Cell. Biol. 71:405-420

d) *Conference Abstracts:*

1. Kulshreshtha, V., L. Babiuk, S. K. Tikoo. 2002. Molecular characterization of 33K protein of bovine adenovirus 3. 21st Annual meeting of American Society of Virology. Kentucky, USA (July 20 to 24th)
2. Xing, Li and S. K. Tikoo. 2002. Characterization of Cis-acting Sequences Required For Efficient Encapsidation of Porcine Adenovirus Type 3 DNA. . 21st Annual meeting of American Society of Virology. Kentucky, USA (July 20 to 24th)
3. Li, X., L. A. Babiuk, S. K. Tikoo. 2002. Construction and characterization of E4 modified porcine adenovirus type 3. 21st Annual meeting of American Society of Virology. Kentucky, USA (July 20 to 24th)
4. Zakhartchouk, A, Y. Zhao, and S. K. Tikoo. 2002. Construction of E1 region mutants of porcine adenovirus type 3. XIIth, International Congress of Virology, Paris, France.
5. Zhou, Y., and S. K. Tikoo. 2001. Analysis of early region 1 of porcine adenovirus 3. "2001 DNA tumor virus meeting" Cambridge, U. K. (July 23rd to July 29th).
6. Q. Wu, J. Robertson, S. K. Tikoo. 2001. Bovine adenovirus-3 as a vector for gene delivery in human cells. American Society of Microbiology meeting on, " Viral Gene Vectors: Molecular biology, design and application to gene therapy". Banff, Alberta, Canada (April 26th to 29th).

7. Li, X., M. Baxi, L. Babiuk, and S. K. Tikoo. 2001. Characterization of Early region 4 of porcine adenovirus type 3. 20th, Annual meeting of American Society of Virology, Madison, Wisconsin (July 21st to 25th).
8. Baxi, M. K., J. Robertson, L. A. Babiuk and S. K. Tikoo. 2001. Characterization of E4 region of bovine adenovirus-3. 20th Annual meeting of American Society of Virology, Madison, Wisconsin.(July 21st to 25th)
9. Tikoo, S. K., R. Brownlie, L. A. Babiuk and M. Baxi. 2000. Bovine adenovirus-3 as a live viral vaccine vector. 2nd International Veterinary vaccines and Diagnostics conference Oxford, UK (July 22nd to 28th)
10. Tikoo, S. K., and Q. Wu. 2000. Bovine adenovirus-3 based gene transfer vectors. 3rd Annual meeting of American Society of Gene Therapy. Denver Colorado (May 31st to June 4th).
11. Zhang, L., L. A. Babiuk, and S. K. Tikoo. 2000. Monitoring foreign gene expression in the E3 region of BAV type 3. 19th Annual meeting of American Society of Virology, Fort Collins Colorado (July 8 to 12th).
12. Wu, Q. and S. K. Tikoo. 2000. Transduction of human cells by bovine adenovirus type 3 (BAV3) vector containing a modified fiber protein. 19th Annual meeting of American Society of Virology, Fort Collins Colorado(July 8th to 12th).
13. Baxi, M. K., D. Dereg, J. Robertson, L. A. Babiuk and S. K. Tikoo. 2000. Recombinant bovine adenovirus 3 expressing bovine viral diarrhea virus glycoprotein E2 generates immune responses in cotton rats. 19th Annual meeting of American Society of Virology, Fort Collins, Colorado (July 8th to 12th).
14. Zhou, Y., P. S. Reddy, L. A. Babiuk and S. K. Tikoo. 2000. Bovine adenovirus type 3 (BAV-3) E1B small protein is not essential for virus growth in fetal bovine retina cells (FBRC). 19th Annual meeting of American Society Virology, Fort Collins, Colorado (July 8th to 12th).
15. Baxi, M. K., L. A. Babiuk, M. Mehtali, and S. K. Tikoo. 1999. Characterization of E4 region of bovine adenovirus-3. XI International Congress of Virology, Sydney, Australia (Aug. 9th to 13th).
16. Tikoo, S. K., P. S. Reddy, L. A. Babiuk, and M. Mehtali. 1999. Replication-defective bovine adenovirus-3 as an expression vector. XI International Congress of Virology, Sydney, Australia (Aug. 9 to 13th).
17. Zakhartchouk, A. N., D. L. Godson, L. A. Babiuk and S. K. Tikoo. 1999. A 121R protein produced from E3 region of bovine adenovirus-3 inhibits cytolysis of mouse cells by human TNF α . 18th Annual meeting of the American Society of Virology, University of Massachusetts, Amherst, MA. USA.
18. Godson, D. L., Y. I. Popowych, S. K. Tikoo, M. A. Morsey, and P. J. Griebel. 1999. Detection and measurement of bovine interleukin-6. Canadian Society for immunology Spring 99 meeting, Banff, Alberta, Canada.
19. Zakhartchouk, A. N., P. S. Reddy, M. K. Baxi, M. E. Baca-Estrada, M. Mehtali, L. A. Babiuk and S. K. Tikoo. 1998. Development of bovine adenovirus-3 as a live vaccine vector. 5th, International Veterinary Immunology Symposium, PAU Ludiana, India. (Nov. 8th to 13th)
20. Reddy, P. S., A. N. Zakhartchouk, M. K. Baxi, N. Idamakanti, C. Pyne, G. Mutwiri, M. Mehtali, L. A. Babiuk and S. K. Tikoo. 1998. Recombinant bovine adenovirus-3 for the induction of mucosal and systemic immune response. 5th International Veterinary Immunology Symposium, PAU, Ludiana, India. (Nov. 8th to 13th)

21. Zakhartchouk, A. N., P. S. Reddy, M. E. Baca-Estrada, M. K. Baxi, Z. Papp, L. A. Babiuk and S. K. Tikoo. 1998. Mucosal immune responses induced by recombinant bovine adenoviruses expressing full length and truncated forms of bovine herpesvirus-1 glycoprotein gD. 17th annual meeting of American Society of Virology, University of British Columbia, Vancouver, Canada.
22. Reddy, P. S., M. K. Baxi, J. B. Lee, N. Idamakanti, A. N. Zakhartchouk, C. Pyne, L. A. Babiuk, and S. K. Tikoo. 1997. Determination and analysis of the complete nucleotide sequence of bovine adenovirus 3. 16th Annual meeting of ASV, Montana, USA
23. Baxi, M. K., J. B. Lee, C. Pyne, P. S. Reddy, A. N. Zakhartchouk, L. A. Babiuk, and S. K. Tikoo. 1997. Identification and transcriptional analysis of bovine adenovirus 3 early region 4. 16th Annual meeting of ASV, Montana, USA.
24. Idamakanti, N., P. S. Reddy, L. A. Babiuk, and S. K. Tikoo. 1997. Transcriptional map of bovine adenovirus-3 early region-3. 16th Annual meeting of ASV, Montana, USA.
25. Zakhartchouk, A. N., C. Pyne, P. S. Reddy, M. K. Baxi, U. B. Rasmussen, V. Meyer, M. Mehtali, L. A. Babiuk, and S. K. Tikoo. 1997. Development of bovine adenovirus 3 vectors based on E3 region deletion. 16th Annual meeting of ASV, Montana, USA.
26. van Drunen Littel-van den Hurk, S., P. J. Lewis, S. K. Tikoo, M. E. Baca-Estrada, R. Braun, L.A. Babiuk. 1996. Efficacy of polynucleotide immunization against bovine herpesvirus-1 in cattle. Keystone symposium on cell biology of virus entry, replication and pathogenesis St Fe, NM, USA,
27. Khattar, S., S. van Drunen Littel-van den Hurk, S. K. Attah-Poku, L. A. Babiuk and S. K. Tikoo. 1995. Identification and characterization of a novel bovine herpesvirus (BHV-1) glycoprotein gL. 76th conference of research workers in animal diseases, Chicago.
28. Khattar, S. K., L. A. Babiuk, and S. K. Tikoo. 1995. Identification and transcriptional analysis of a 3'-coterminal gene cluster in bovine herpesvirus type 1 containing homologs of herpes simplex virus type 1 UL1, UL2, UL3 and Pseudorabies virus UL3.5 open reading frames. 14th annual meeting of American Society for virology, Uni. of Texas, Austin, Texas.
29. Babiuk, L. A., P. J. Lewis, S. Suradhat, S. van Drunen Littel-van den Hurk, M. Baca Estrada, S. K. Tikoo, and D. Yoo. 1995. Polynucleotide Immunization: A novel approach to vaccination. Cold Spring Harbour Laboratory Conference on "Molecular approaches to the control of infectious diseases".
30. Mittal, S.K., S. K. Tikoo, L. Prevec, F. L. Graham, and L. A. Babiuk. 1995. Bovine adenovirus-based expression vectors as potential vehicles for recombinant vaccine delivery. 76th conference of research workers in animal diseases, Chicago.
31. Babiuk, L. A., S. van Drunen Littel-van den Hurk, and S. K. Tikoo. 1995. Novel viral vaccines for livestock. International Conference on Veterinary Immunology, Davis, California.
32. Babiuk, L. A., S. van Drunen Littel-van den Hurk, and S. K. Tikoo. 1995. Immunology of bovine herpesvirus-1 (BHV-1). Ninth annual bovine herpesvirus-1 workshop, Belgium.
33. van Drunen Littel-van den Hurk, S., P. J. Lewis, G. Cox, S. K. Tikoo, M. Baca-Estrada, and A. L. A. Babiuk. 1995. Induction of humoral and cellular immunity to BHV-1 in cattle by immunization with a BHV-1 gD polynucleotide vaccine. 20th International herpesvirus workshop, roningen, Netherlands.

34. Papp, Zs, S. K. Mittal, M. Baca-Estrada, S. K. Tikoo, D.Yoo, M. Benko and L. A. Babiuk. 1995. Mucosal and systemic immune responses induced by recombinant adenovirus vectors expressing full length and truncated glycoprotein D of bovine herpesvirus type 1 in cotton rats. Canadian Society of Immunology, Lake Louise, Alberta.
35. Babiuk, L. A., S. van Drunen Littel-van den Hurk, X. Liang and S. K. Tikoo. 1994. New developments in veterinary viral vaccines. The 7th International conference of comparative and applied virology, Montreal, Canada.
36. van Drunen Littel-van den Hurk, S., J. Van Donkersgoed, J. Kowalaski, S. K. Tikoo, J. V. Van den Hurk, D. Godson, and L. A. Babiuk. 1994. A subunit gIV vaccine, produced in transfected mammalian cells in culture, induces protection against BHV-1 in cattle. Eighth annual bovine herpesvirus workshop, Vancouver, Canada.
37. Tikoo, S. K., Y. Popowych, M. Campos and L. A. Babiuk. 1993. Antigenic and structural properties of bovine herpesvirus-1 glycoprotein as defined by analysis of truncations and deletions expressed by recombinant vaccinia viruses, and synthetic peptides. IX International congress of Virology, Glasgow, UK.
38. Tikoo, S. K., D. R. Fitzpatrick, S. van Drunen Littel-van den Hurk, T. J. Zamb, and L. A. Babiuk. 1990. Antigenic analysis of BHV-1 glycoprotein gIV using deletion mutants. 15th International Herpesvirus Workshop. Georgetown University, Washington, D.C.
39. Tikoo, S. K., D. R. Fitzpatrick, T. J. Zamb, M. D. Parker, S. van Drunen Littel-van den Hurk, and L. A. Babiuk. 1989. Inducible expression of bovine herpesvirus 1 glycoprotein gIV in murine cells. VIth International Conference on Comparative and Applied Virology, Banff, Alberta, Canada.